

WE CLAIM:

1. A lipid emulsion composition which comprises an oil, an emulsifier, a tonicity modifier, and water.
2. The lipid emulsion composition of claim 1 further comprising a
5 surfactant, a co-solvent, a bacteriostat, a preservative, an active ingredient, and an adsorbent.
3. The lipid emulsion composition of claim 1 wherein the oil is selected from the group consisting of monoglycerides, diglycerides, triglycerides, and mixtures thereof.
- 10 4. The lipid emulsion composition of claim 1 wherein the oil is a plant oil.
5. The lipid emulsion composition of claim 4 wherein the plant oil is selected from the group consisting of soybean oil, cotton seed oil, safflower oil, corn oil, coconut oil, sesame oil, peanut oil, olive oil and mixtures thereof.
- 15 6. The lipid emulsion composition of claims 1 or 2 wherein the oil is selected from the group consisting of soybean oil, fish oil, animal oil, mineral oil, and chemically-synthesized oil.
7. The lipid emulsion composition of claims 1, 2, 3, 4, or 5 wherein the emulsifier is a phospholipid.
- 20 8. The lipid emulsion of claim 6 wherein the emulsifier is a phospholipid.

9. The lipid emulsion composition of claims 1, 2, 3, 4, or 5 wherein the phospholipid is selected from the group consisting of egg yolk phospholipids, hydrogenated egg yolk phospholipids, soybean phospholipids, hydrogenated soybean phospholipids, and mixtures thereof.

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10. The lipid emulsion composition of claim 6 wherein the phospholipid is selected from the group consisting of egg yolk phospholipids, hydrogenated egg yolk phospholipids, soybean phospholipids, hydrogenated soybean phospholipids, and mixtures thereof.

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11. The lipid emulsion composition of claim 7 wherein the phospholipid is selected from the group consisting of egg yolk phospholipids, hydrogenated egg yolk phospholipids, soybean phospholipids, hydrogenated soybean phospholipids, and mixtures thereof.

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12. The lipid emulsion composition of claim 8 wherein the phospholipid is selected from the group consisting of egg yolk phospholipids, hydrogenated egg yolk phospholipids, soybean phospholipids, hydrogenated soybean phospholipids, and mixtures thereof.

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13. The lipid emulsion composition of claims 1, 2, 3, 4, or 5 wherein the emulsifier is a lecithin.

14. The lipid emulsion composition of claim 6 wherein the emulsifier is a lecithin.

15. The lipid emulsion composition of claim 7 wherein the emulsifier is a lecithin.

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16. The lipid emulsion composition of claim 8 wherein the emulsifier is a lecithin.

17. The lipid emulsion composition of claims 1, 2, 3, 4, or 5 wherein the tonicity modifier is selected from the group consisting of glycerin, sorbital, polyoxyethylated hydrocarbons, and C₆-C₂₀ saturated or unsaturated aliphatic acids.

5 18. The lipid emulsion composition of claim 6 wherein the tonicity modifier is selected from the group consisting of glycerin, sorbital, polyoxyethylated hydrocarbons, and C₆-C₂₀ saturated or unsaturated aliphatic acids.

19. The lipid emulsion composition of claim 7 wherein the tonicity modifier is selected from the group consisting of glycerin, sorbital, polyoxyethylated hydrocarbons, and C₆-C₂₀ saturated or unsaturated aliphatic acids.

10 20. The lipid emulsion composition of claim 8 wherein the tonicity modifier is selected from the group consisting of glycerin, sorbital, polyoxyethylated hydrocarbons, and C₆-C₂₀ saturated or unsaturated aliphatic acids.

21. The lipid emulsion composition of claim 1 wherein the tonicity modifier is glycerin.

15 22. The lipid emulsion composition of claim 1 wherein the oil is present in an amount in the range of about 10 to about 30 percent by weight based on the weight of the composition.

20 23. The lipid emulsion composition of claim 1 wherein the surfactant is present in an amount in the range of about 1 to about 5 percent by weight based on the weight of the composition.

24. The lipid emulsion composition of claim 1 wherein the water is present in an amount in the range of about 70 to about 90 percent by weight based on the weight of the composition.

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25. The lipid emulsion composition of claim 1 wherein the emulsion comprises particles in the range of about 0.25 microns to about 0.75 microns in diameter.

5 26. A lipid emulsion composition comprising about 20 weight percent soybean oil, about 2 weight percent glycerin, about 1 weight percent egg yolk phospholipid, and about 80 weight percent water.

27. A method for removing a toxin from the circulation which comprises infusing a lipid emulsion composition intravenously whereby the toxin permeates the lipid emulsion composition and is withdrawn from the bloodstream.

10 28. The method of claim 21 wherein the lipid emulsion composition comprises about 20 weight percent soybean oil, about 2 weight percent glycerin, about 1 weight percent egg yolk phospholipid, and about 80 weight percent water.

15 29. The method of claim 22 wherein the lipid emulsion composition is intravenously infused at an initial rate in the range of about 7.5 milliliters per kilogram per minute for a time period of about 30 seconds followed by a steady-state rate in the range of about 3 milliliters per kilogram per minute for a time period of about 2 minutes

20 30. A delivery device comprising:
a vented spike for insertion into a lipid-emulsion-containing container;
a drip chamber in communication with the vented spike;
a main delivery channel implemented by a length of tubing in communication with the drip chamber;
25 a connecting means contacting the bottom end of the large bore tubing;

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a means for fluid rate regulation operatively engaged to the outer surface of the tubing immediately below the drip chamber;

a length of extension tubing in communication with the tubing;

5 a syringe coupled to the length of extension tubing opposite to the drip chamber;

a one-way valve joined to the large bore tubing above the length of extension tubing; and

a second one-way valve joined to the large bore tubing below the extension tubing.

10 31. The delivery device of claim 24 wherein the syringe is implemented with one or more finger rings and a thumb ring on its piston.

32. The delivery device of claim 25 wherein the syringe is suspended by the thumb ring from a pole.

15 33. The delivery device of claim 26 wherein the thumb ring of the syringe is suspended at about the height of the top of the lipid-emulsion-containing container.

20 34. The delivery device of claim 27 wherein the length of extension tubing is about the length of the distance from the first valve to the pole.

35. The delivery device of claim 28 wherein the distance from the first valve to the pole is about the length from the vented spike to the first valve and the length of the lipid-emulsion-containing container.